

PROGRESS OF PREVENTION AND TREATMENT IN CHINA

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Worldwide, 140–250 million cases of lymphoedema are estimated to exist, with filariasis being the most common cause (Miller, 1998). Until now, there has been no precise estimation of the incidence of the disease in China. Fifty years ago, filarial lymphoedema was the most common variation of the disease. China was one of the most seriously affected countries in the world and filariasis was endemic. Filariasis could be found in 16 provinces, covering more than 800 counties/cities. There were about 30 million filariasis cases in the country. About five million people suffered from clinical manifestations of filariasis, including acute lymphadenitis, lymphangitis, lymphoedema, elephantiasis, hydrocele and chyluria (Sun, 1999).

After the foundation of the People's Republic of China in 1949, the Chinese government formulated a strategic plan to control filariasis, and systematically organised the implementation of measures to control and treat the disease throughout the country, including repeated mass blood tests. Those who were found to be infected were prescribed diethylcarbamazine (DEC), with medical costs being covered by the government throughout urban and rural areas. This policy proved successful and effective.

After 50 years of sustained effort, the goal of eliminating filariasis was achieved in 2006. The 'National Report on the Elimination of Lymphatic Filariasis

that raged in China for 1000 years' was submitted to the World Health Organization (WHO) by the Ministry of Health in March 2006 (WHO, 1994; 1999; Shi and Sun, 2007). The residual filarial lymphoedema patients who are amicrofilaremia are between the ages of 70 and 80. In our centre, there have been no new filarial lymphoedema patients for more than 30 years.

China has undergone tremendous changes during the past 50 years. On the one hand there has been a sharp decrease in the incidence of filarial lymphoedema but, on the other, an increase in malignant lymphoedema and lymphoedema caused by surgery and radiation therapy due to the increased incidence of malignant tumours. For example, the incidence of breast cancer in Shanghai has increased by 180% during the past 30 years and is the most common cause of female malignant tumour. Breast cancer patients account for one in six patients with a malignant tumour in the city (Zheng et al, 2001; Shao et al, 2005). The increased frequency of breast cancer is 1–2% higher in China than in western countries.

The occurrence of upper limb lymphoedema among women has risen accordingly. The incidence of arm lymphoedema after breast cancer surgery and radiation is estimated to be 20–30% (Zheng et al, 2001), resulting in an increase of about 40,000–60,000 new patients with arm lymphoedema throughout the country every year.

In the authors' opinion, in rural areas, secondary inflammatory lymphoedema accounts for a considerable proportion of those with the disease. Due to ignorance of the importance of early diagnosis and proper treatment, many of the patients tend to be at a late stage of the disease

when they finally come to hospital. It is then difficult to tell the cause of the oedema, or to distinguish which symptom appeared first: the oedema or the infection. It should be noted that the numbers of peripheral lymphoedema associated with chylous reflux syndromes are showing a tendency to increase year by year. Although the real causes are not clear, evidence indicates that inflammation plays a major part since repeated fever, abdominal pain or limb cellulitis are common complications for many patients and anti-inflammation treatment has been effective.

During the long fight against filarial lymphoedema, people in rural areas invented a heat treatment using a brick oven which was preheated with charcoal or wood. The patient would place the affected limb in the oven for heating; a treatment that would be repeated several times. Although simple, this procedure did help to reduce the oedema and cellulitis (Cheng, 1964). Inspired by this method, Professor Tisheng Chang and Wenyi Huang developed the first infra-red ray heating apparatus in 1964. The combination of heat from the infra-red ray with elastic bandaging, called 'heating and bandaging treatment', received encouraging results (Chang and Gan, 1994). Oedema was almost totally reduced in some patients and, to date, many patients have been treated with success (Chang et al, 1985).

As well as filarial lymphoedema, those with secondary inflammatory lymphoedema, arm oedema after mastectomy, and primary lymphoedema have also received thermotherapy.

In 1983, a microwave heating apparatus was developed in the Department of Plastic and Reconstructive Surgery at the Shanghai 9th People's Hospital. With a stronger penetrating power than that of infra-red ray,


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it has a better heating effect on local tissue and obtains results as good as the infra-red ray (Chang et al, 1987). However, the microwave apparatus has the disadvantage of uneven heating of the treated limb. To overcome this shortcoming, a new model of the instrument is currently being developed. This heating apparatus has been introduced to countries such as Japan, Italy and the USA. Research into the treatment of thermotherapy on lymphoedematous limbs has shown that heating may stimulate the local immunological defence function of the tissue and increase the circulation of fluid and macromolecules, thus helping to control inflammation and reduce oedema (Liu and Olszewski, 1993).

Chinese medicine with its history of 5,000 years has shown unique therapeutic effects on many diseases, including lymphoedema. After many years of exploration, an extract from a Chinese herb called 'Mai Qu En' has been used in clinics since the 1990s. From the results of nearly 1,000 treated cases, the drug has been seen to have a notable effect in reducing the occurrence of cellulitis and diminishing its severity. Inflammation is the main complication of lymphoedema and a challenge for both doctors and patients. The side-effects of long-term antibiotics might deter doctors from prescribing them to patients who regularly attend with cellulitis. *Mai Qu En* alone can help to reduce the episodes of cellulitis from once a week to 1–2 times per year after one or two courses of treatment. Lymphoedema of the limb may diminish as inflammation subsides. In the authors' opinion, periodical treatment of this drug for several years may result in a reduction in the size of lymphoedematous limbs. Several drugs produced from Chinese medicine are now in pre-clinical trials.

The term 'lymphoedema' represents the pathological changes resulting from lymphatic vascular and nodal diseases rather than a name of a disease itself. The term 'lymphatic circulation disorders' may well represent the diversity or variety of lymphatic diseases. Due to a limited understanding of the nature of lymphatic disease, lymphoedema can only be alleviated, not cured. The treatment protocol should be individualised and multimodal according to its aetiology and the stage and the type of the disease.

In our centre, Chinese medicine alone, or combined with complex decongestion therapy (CDT) are recommended for complicated lymphoedema cases. A combination of heating with CDT is also suitable for oedema with repeated infection. Microsurgery is now being chosen for secondary lymphoedema shortly after surgery or injury.

Although progress has been made in eliminating filarial lymphoedema in China, other lymphatic diseases are neglected. Compared with controlling parasitic lymphoedema, preventing or controlling lymphoedema caused by inflammation and malignant tumour is far more difficult. In rural areas, patients usually look to traditional Chinese medicine, which sometimes works. In the cities, patients have to try western medicine (e.g. diuretic drugs) or nothing because many healthcare professionals are not familiar with the disease. Although the elimination of infection and tumour is unrealistic at present, to prevent and control inflammation and restore lymphatic circulation after surgery should still be the goals. With economic development and improvements in people's standard of living, lymphatic disorders should receive more attention in China. At present, there is a huge imbalance between the numbers of patients and doctors. The most significant problem is not the cost of treatment (in our hospital the treatment is quite cheap) but finding a doctor who is skilled in lymphoedema treatment with the necessary equipment and technology. Lymphologists are rare. More specialists trained in both clinical and basic aspects of care are needed to meet the demands. The research into lymphangiogenesis and genetic-pathology on lymphatic diseases has developed rapidly during the past 10 years (Irrthum et al, 2000, Joukov et al, 1996, Kriederman et al, 2003, Witte et al, 2001). The findings from basic research and the efforts of lymphologists worldwide will inevitably help to promote the development of clinical treatment. 

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